Feb. 10, 1931. H. J. FLAHERTY 1,792,292

LIGHTING DEVICE

Filed Aug. 14, 1929

Fig. 1.

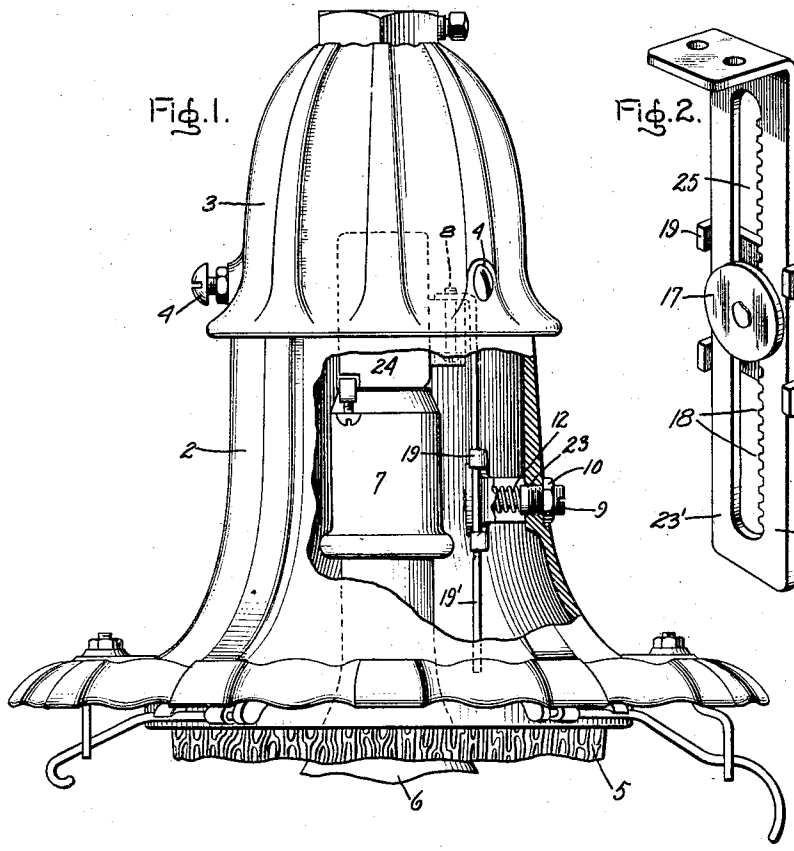
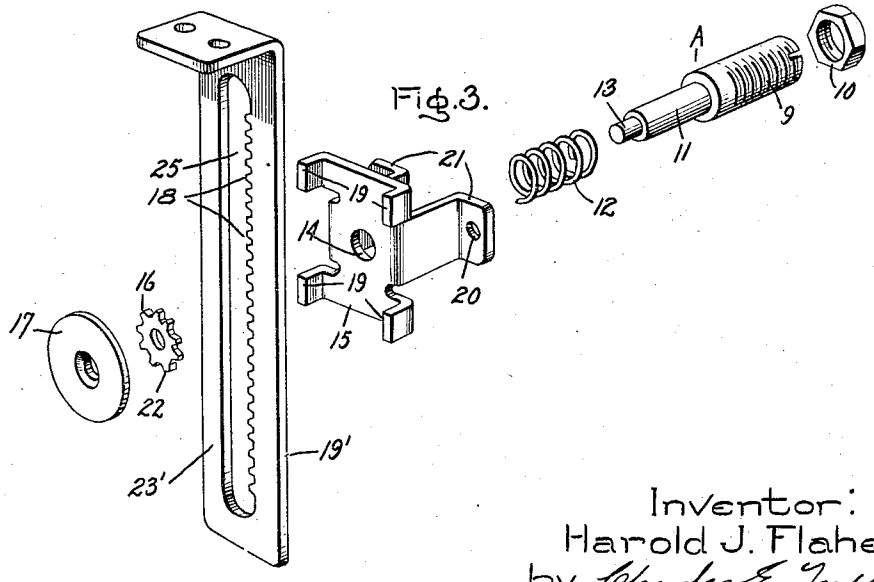


Fig. 2.

Fig. 3.



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UNITED STATES PATENT OFFICE

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LIGHTING DEVICE

Application filed August 14, 1929. Serial No. 385,922.

My invention relates to a lighting device comprising an electric lamp, said device being especially adapted for street lighting.

In devices of the above character it is important that the filament of the electric lamp be properly adjusted with respect to the other elements thereof. Inasmuch as the socket that supports the electric lamp is located within the casing of the device, it is desirable that means be provided for enabling the adjustment of the lamp and socket to be made from the outside, thus avoiding the necessity of having to unlatch or displace any of the elements of the device for this purpose, and it is an object of the invention to provide improved means for this purpose. It is an object to provide such adjusting means, comprising a shaft which may be turned from the outside of the device, which shaft is geared with the supporting means for the electric lamp within the casing and in such a manner that the lamp may be adjusted lengthwise of the device. It is an object to lock the shaft to hold the lamp in its adjusted position, and to provide friction means for preventing the lamp and its supporting means from falling when the locking means is released for adjusting purposes.

The features of the invention will be more fully described in the following specification and claims, reference being had to the accompanying drawing, in which Fig. 1 shows a unit comprising the features of the invention. In this figure the unit is shown in side elevation, with the casing partly broken away and the lower part of the globe also broken away to simplify the drawing. Fig. 2 shows, in perspective, the mechanism to which the socket is secured and through the medium of which the adjustment is accomplished. Fig. 3 shows the same mechanism with the elements thereof in so-called exploded view and in perspective.

Referring more in detail to the drawing, the fixture comprises a casing 2 of any suitable insulating material, which casing is provided with a cap 3. To this cap the casing is secured, as for example by means of screws 4 which are in threaded engagement with the cap and which project into the usual depression (not shown) in the casing, thus supporting the latter. In the lower part of the casing such elements as the globe 5 are secured in any suitable manner. Sometimes a refractory element is interposed between the incandescent lamp 6 and the globe, which element is also secured to the casing. Above the lamp the socket 7 is shown, which latter is secured in any suitable manner to the adjusting mechanism, Fig. 2, as for example by means of screws 8.

The adjusting mechanism comprises a shaft element A, which is provided with a threaded shoulder 9 to receive the nut 10 which is used to lock the adjusting mechanism in any adjusted position. The section 11 of the shaft is adapted to receive a compression spring 12 and passes through a hole 14 in the bracket 15. The end portion 13 of the shaft receives the pinion 16, and the collar 17. The collar and the pinion 16 are united to the end of the shaft in any suitable manner, as for example by spreading the end of the shaft as indicated in Fig. 2. Therefore, the pinion 16 and the collar 17 are rigid with the shaft. Normally the pinion is located in the slot 25 of the rack geared with the teeth 18. The bracket 15 is provided with arms 19 between which the rack element 19′ is located. The bracket therefore serves as a guiding element for the rack, the former being secured to the inside of the casing in any suitable manner, as for example by means of screws extending through holes 20 at the base of the legs 21. When the elements shown in Fig. 3 are assembled, as shown in Fig. 2, the pinion 16 is held in the slot 25 and in engagement with the teeth 18 of the rack. As indicated in Fig. 1, the threaded shoulder 9 of the shaft passes through a hole 23 in the casing, the hole being sufficiently large to permit the section 11 of the shaft to move lengthwise therein. The spring 12, however, operates to press the shaft toward the right, thereby maintaining the collar 17 against the face 23′ of the rack and at the same time maintaining the teeth of the pinion and of the rack in engagement. The collar 17 and the spring 12 therefore operate as a friction de-

vice to prevent the rack 19′ from falling and the lamp with it when the nut 10 is loosened from the casing and the shaft thus released. Also the nut 10 serves to engage the outside of the casing, thereby locking the shaft and the rack against movement. Inasmuch as the bracket 15 is secured to the casing, the turning operation of the shaft A when the nut 10 is loose will turn the pinion 16, with the result that the rack 19′ will be raised or lowered, depending upon the direction of rotation. Obviously a clockwise rotation, viewing the axis of the shaft A from right to left, will cause the rack to be raised, and the reverse rotation will cause the rack to be lowered. The head of the shaft A is provided with a slot in order to facilitate the turning operation by means of any suitable tool such as a screw driver. When the rack has been set in desired position, the shaft may be locked by means of the nut 10, as indicated in Fig. 1.

The lamp socket 7 may be secured to the rack 19′ in any suitable manner. As indicated in Fig. 1, the socket is secured to a porcelain element 24, which latter is directly secured to the rack 19′ by means of screws 8. Ordinarily in units of the type shown in Fig. 1, the socket 7 is provided with terminals projecting above the top of the socket, which terminals are adapted to be inserted in a series cutout receptacle, represented in this case by the element 24. However, any suitable arrangement may be employed to secure the socket to the rack. With the arrangement shown, if the nut 10 is made to recede from the casing the pinion 16 may be disengaged from the rack 19′ by pressing the end of the shaft A to the left, thereby compressing the spring 12. Therefore, before the globe and other elements are secured to the container, the rack 19′ may be raised or lowered without the necessity of turning the shaft A. This may be done by pressing the shaft slightly to release the friction between the collar 17, whereupon the rack may be raised or lowered by hand, allowing the shaft to rotate. Or the shaft may be pressed until the pinion 16 clears the teeth 22, in which case the rack may be raised or lowered alone. However, when the shaft A is released, the compression spring 12 draws the pinion 16 back into normal position, after which the shaft may be locked by the nut 10 to hold the rack in the new position.

It will be seen, therefore, that the invention comprises means for readily adjusting the lamp within the device from the outside, which means is simple and employs a small number of parts thus insuring a low cost of manufacture. The construction is rugged, the operation is simple, and the adjustment can be quickly performed with no inconvenience such as the preliminary removal of one or more of the light-modifying elements of the device. The assembling operation is also simple and inexpensive.

It will be understood that, although I have illustrated only one form of the invention, I do not wish to be limited to the specific form shown, inasmuch as I contemplate modifications and variations within the spirit of the invention and the scope of the claims contained herein.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In an adjusting mechanism, the combination of a wall having an opening, a guide bracket fixed to the wall, a toothed rack adapted to slide in said guide bracket, a shaft which projects through said opening, a pinion on said shaft which meshes with said toothed rack, a friction member on the shaft, and a spring member which engages the shaft and biases it in a direction to clamp the rack betwen said friction member and the bracket, whereby said friction member may be moved away from said rack by axial movement of the shaft.

2. In a lighting device, the combination of a casing having an opening in its wall, a guide bracket fixed to the casing, an adjustable lamp supporting element carried by the guide bracket, a shaft which projects through said opening and is provided on its end with a friction member for engagement with the face of said lamp supporting element, means carried by the shaft and engaging the lamp supporting element for adjusting said element when the shaft is turned, and spring means which biases the shaft in a direction to hold the friction member in engagement with said lamp supporting element whereby the friction member may be moved away from the lamp supporting element by axial movement of the shaft.

In witness whereof, I have hereunto set my hand this tenth day of August, 1929.

HAROLD J. FLAHERTY.